



André Anjos

Signal Processing Engineer, D.Sc.

Social Information

Date of Birth: December 31, 1973 (49 years old)
Nationality: Swiss and Brazilian
Family: Married, One child

Professional Experience

2018– **Scientific Researcher**, Idiap Research Institute, Martigny, Switzerland.
Head of the Biosignal Processing Group.

Teaching:

- Master in Artificial intelligence, post-graduate level, Idiap/Wallis/Unidistance partnership, Academic Supervisor for Modules M05 (Open Science and Ethics), M06/M08 (Fundamentals of Machine Learning 1 and 2)
- Fundamentals in statistical pattern recognition, post-graduate level, at the École Polytechnique Fédérale de Lausanne (EPFL, Switzerland), EE-612

Supervision:

- Supervision of Driss Khalil, master student on computer-aided segmentation and diagnosis for eye diseases from retinographies
- Supervision of Geoffrey Raposo, master student on computer-aided diagnosis for Tuberculosis exclusion in TB infection patients
- Supervision of Colombine Verzat, master student on Adverse event Detection for Latent Tuberculosis Infection (LTBI) Treatment
- Supervision of Tim Laibacher, graduate student on 2D Eye-fundus Binary Segmentation
- Supervision of Jaden Diefenbaugh, graduate student on work associated with the BEAT platform

Interests:

- Biomedical-related signal processing applications
- Analysis of biomedical records and e-Health
- Diagnostics for medical-related applications
- Image and signal processing
- Pattern recognition and machine learning
- Open-science

- 2014–2018 **Research Associate**, Idiap Research Institute, Martigny, Switzerland.
Research on Biometrics, Security and Computing.
Teaching:
- Fundamentals in statistical pattern recognition, post-graduate level, at the École Polytechnique Fédérale de Lausanne (EPLF, Switzerland), EE-612
 - Guest Lecturer at State University of São Paulo, Campus Bauru, for the master level course “Special Topics in Reproducible Research Pattern Recognition and Machine Learning”, June 2015
- Supervision:**
- Co-supervision of Ivana Chingovska, doctorate student.
- Project writing and involvement:**
- FP7 BEAT: contact point for Idiap, leader on 2 work packages. BEAT develops a new open-source online platform for biometric system certification and development;
 - CTI Project FEDARS: face recognition using deep architectures;
 - Hassler Project COHFACE: remote photo-plethysmography (heart-rate measurements) from webcam images, application to face anti-spoofing;
 - CTI Project 3DFingerVein: vein recognition using a finger vein imagery acquired from multiple cameras; Technical lead at Idiap;
 - IARPA Project Odin (BATL team): presentation attack detection for face recognition using Visual, NIR and Thermal cameras. Technical contact point;
 - Development and management of Bob, a framework for reproducible research in pattern recognition and machine learning.
- 2010–2013 **Post-doctoral Researcher**, Idiap Research Institute, Martigny, Switzerland.
Research on Biometrics, Security and Computing.
Teaching:
- Fundamentals in statistical pattern recognition, post-graduate level, at the École Polytechnique Fédérale de Lausanne (EPLF, Switzerland), EE-612
- Supervision:**
- Co-supervision of Ivana Chingovska, doctorate student;
 - Co-supervision of Tiago Freitas Pereira and Jukka Mänttä, visiting students;
 - Co-supervision of Murali Mohan Chakka, trainee.
- Project writing and involvement:**
- FP7 BEAT: contact point for Idiap, leader on 2 work packages. BEAT develops a new online platform for biometric system certification and development;
 - FP7 TABULA RASA: contact point for Idiap. TABULA RASA investigates sensitiveness to spoofing attacks on biometric systems;
 - CTI Project Replay: development of database and counter-measures to spoofing. Construction of working prototypes with the industrial partner (KeyLemon);
 - Development and management of Bob, a framework for reproducible research.
- 2004–2010 **Researcher**, University of Wisconsin, Madison, USA.
Development and construction of the ATLAS Trigger and Data-Acquisition Systems, at CERN, Switzerland.
Supervision:
- Supervision of CERN summer students (three summers);
 - Co-supervision Rodrigo Coura Torres, doctorate student.
- Achievements:**
- Design, development and maintenance of the ATLAS Trigger and Data Acquisition systems. It is currently deployed and operational on more than 5000 machines at CERN and worldwide.
- 2000–2004 **Graduate Student**, Federal University of Rio de Janeiro, Brazil.
Design and development of a novel algorithm for fast physics triggering based on Calorimetry, Topological Mapping and Neural Networks for the ATLAS Experiment, CERN, Switzerland.
- 1994–1999 **Under Graduate Student**, Federal University of Rio de Janeiro, Brazil (includes 1 year internship at CERN, Switzerland).
Signal Processing student.
Achievements:
- Sub-optimal filtering for particle discrimination;
 - Neural classifiers implemented in a transputer-based parallel machine;
 - Spent 1 year at CERN, Switzerland in a joint project with the university. Participated in the development of early prototypes of the 2nd level-trigger and what would become the final design of the trigger for the ATLAS experiment.

Scientific Contributions

Open Software

- 2010– **Bob**, <https://www.idiap.ch/software/bob>, A framework for reproducible research in pattern recognition and machine learning.
- 2012– **BEAT**, <https://www.beat-eu.org/platform>, A platform for open-science in machine learning and pattern recognition.

Open Data

- 2016 **COHFACE**, <https://www.idiap.ch/dataset/cohface>, An open-dataset for studying remote photo-plethysmography.
- 2011 **Replay-Attack**, <https://www.idiap.ch/dataset/replayattack>, A video dataset for studying presentation-attack detection in Biometrics.

Committees

- 2019– **28th International Joint Conference on Artificial Intelligence**, *Senior Program Committee*.
- 2018 **17th International Conference of the Biometrics Special Interest Group**, *Program Committee*.
- 2016 **IAPR International Conference on Biometrics**, *Program Committee*.
- 2015 **IEEE International Conference on Biometrics: Theory, Applications, and Systems**, *Participation on Doctoral Consortium*.
- 2015 **IEEE International Conference on Biometrics: Theory, Applications, and Systems**, *Chair of special session on “Reproducible Research in Biometrics”*.
- 2015 **IAPR International Conference on Biometrics**, *Program Committee*.
- 2014 **International Workshop on Soft-biometrics**, *Program Committee*, Hosted by ECCV.

Memberships

- 2020– **IEEE Engineering in Medicine & Biology Society (EMBS)**.
- 2019– **Institute of Electrical and Electronics Engineers (IEEE)**.

Reviewer

- 2019– **International Journal of Computer Vision**.
- 2018– **IEEE Transactions on Biometrics**.
- 2014– **Elsevier Image and Vision Computing (IMAVIS)**.
- 2013– **IEEE Transactions on Information Forensics and Security**.
- 2013– **IET Biometrics**.
- 2012– **IEEE Transactions in Image Processing**.
- 2012– **IEEE Transactions on Circuits and Systems for Video Technology**.

Education

- 2001–2006 **Doctor**, Federal University of Rio de Janeiro, Brazil.
D.Sc. degree from the Electronics Engineering School (Signal Processing Laboratory), Post Graduate Program (COPPE). Thesis work developed at CERN, Switzerland in the context of the ATLAS Experiment.
- 2000–2001 **Master**, Federal University of Rio de Janeiro, Brazil.
M.Sc. degree from the Electronics Engineering School (Signal Processing Laboratory), Post Graduate Program of the Federal University of Rio de Janeiro (COPPE/UFRJ). Thesis work developed at the university in the context of the ATLAS-CERN/UFRJ collaboration.
- 1994–1999 **Engineer**, Federal University of Rio de Janeiro, Brazil.
Electronics Engineering degree from the Electronics Engineering Department.
- 1989–1993 **Technician**, Federal Center of Technology, Rio de Janeiro, Brazil.
Technical course in Electronics, taken at the same time as my high-school studies.

Patents

- WO2019150254 Method and Device for Biometric Vascular Recognition and/or Identification (granted)
- WO2017221049 A data-network connected server, a device, a platform and a method for conducting computer-executable experiments (granted), cf. *EU FP7 BEAT Project*.
- US9973503B2 Method and internet-connected server for reviewing a computer-executable experiment (granted), cf. *EU FP7 BEAT Project*.

Computer skills

- Operating Systems Proficiency in Linux (and other unixes), Mac OSX and Microsoft Windows
- Administration Advanced system and network management. Concepts of networking, firewalling, internet publishing, protocols and architectures
- Programming Advanced knowledge on several structured and object-oriented languages programming. Advanced knowledge on concurrent and parallel programming
- Software Management Advanced experience on building and integrating large software projects, managing releases and software policies, as well as working with collaboration tools for revision control, building, and documenting
- Databases Extensive experience with the use and development of databases

Languages

- Portuguese **Mater language.**
- English **Proficient**, Read, write and speak fluently.
- French **Proficient**, *certified C1-level*, Read, write and speak fluently.
- Spanish **Basic**, Basic communication skills, can read well.

Off-work

- Sports Alpine skiing, Biking, Tennis, Swimming
- Music Various percussion instruments and brazilian cavaquinho
- Computing Explore new techniques and tools

Quick remarks on publications

- H-Index = 27 (21500+ citations). See my Google Scholar page
- Articles ~30% are journals. I authored and co-authored more than 100 publications. I'm first author on ~20% of the publications listed on the next section. All articles are available in PDF format at my professional website.

Publications (reverse chronological order)

- [1] Meysam Shamsi, Anthony Larcher, Loic Barrault, Sylvain Meignier, Yevheni Prokopalo, Marie Tahon, Ambuj Mehrish, Simon Petitrenaud, Olivier Galibert, Samuel Gaist, André Anjos, Sebastien Marcel, and Marta R. Costa-jussà. "Towards lifelong human assisted speaker diarization". In: *Computer Speech & Language* (July 27, 2022). ISSN: 0885-2308. DOI: 10.1016/j.csl.2022.101437.
- [2] Geoffrey Raposo, Anete Trajman, and André Anjos. "Pulmonary Tuberculosis Screening from Radiological Signs on Chest X-Ray Images Using Deep Models". In: *Union World Conference on Lung Health*. The Union. Nov. 1, 2022.
- [3] Adrian Galdran, André Anjos, José Dolz, Hadi Chakor, Hervé Lombaert, and Ismail Ben Ayed. "State-of-the-art retinal vessel segmentation with minimalistic models". In: *Scientific Reports* 12.1 (Apr. 13, 2022). Number: 1 Publisher: Nature Publishing Group, p. 6174. ISSN: 2045-2322. DOI: 10.1038/s41598-022-09675-y. URL: <https://www.nature.com/articles/s41598-022-09675-y>.

- [4] Matheus A. Renzo, Natália Fernandez, André A. Baceti, Natanael Nunes Moura Junior, and André Anjos. "Development of a lung segmentation algorithm for analog imaged chest X-Ray: preliminary results". In: *Anais do 15. Congresso Brasileiro de Inteligência Computacional*. Congresso Brasileiro de Inteligência Computacional. SBIC, Oct. 2021, pp. 1–8. DOI: 10.21528/CBIC2021-123. URL: https://sbic.org.br/eventos/cbic_2021/cbic2021-123/.
- [5] Adrian Galdran, André Anjos, José Dolz, Hadi Chakor, Hervé Lombaert, and Ismail Ben Ayed. *The Little W-Net That Could: State-of-the-Art Retinal Vessel Segmentation with Minimalistic Models*. Sept. 2020. arXiv: 2009.01907 [cs.CV]. URL: <https://arxiv.org/abs/2009.01907>.
- [6] Ana Cláudia Barbosa Honório Ferreira, Danton Diego Ferreira, Henrique Ceretta Oliveira, Igor Carvalho de Resende, André Anjos, and Maria Helena Baena de Moraes Lopes. "Competitive neural layer-based method to identify people with high risk for diabetic foot". In: *Computers in Biology and Medicine* 120 (May 2020). DOI: 10.1016/j.combiomed.2020.103744. URL: <https://www.sciencedirect.com/science/article/pii/S0010482520301244>.
- [7] Tim Laibacher and André Anjos. *On the Evaluation and Real-World Usage Scenarios of Deep Vessel Segmentation for Retinography*. Sept. 2019. arXiv: 1909.03856 [cs.CV]. URL: <https://arxiv.org/abs/1909.03856>.
- [8] Lambert Sonna Momo, Luciano Cerqueira Torres, Sébastien Marcel, André Anjos, Michael Liebling, Adrian Shajkofci, Serge Amoos, Alain Woeffray, Alexandre Sierro, Pierre Roduit, Pierre Ferrez, and Lucas Bonvin. "Method and Device for Biometric Vascular Recognition and/or Identification". Patent WO/2019/150254. Aug. 2019. URL: <https://patentscope.wipo.int/search/en/detail.jsf?docId=W02019150254>.
- [9] Anjith George, Zohreh Mostaani, David Geissenbuhler, Olegs Nikisins, André Anjos, and Sébastien Marcel. "Biometric Face Presentation Attack Detection with Multi-Channel Convolutional Neural Network". In: *IEEE Transactions on Information Forensics and Security* (May 2019). DOI: 10.1109/TIFS.2019.2916652.
- [10] Sushil Bhattacharjee, Amir Mohammadi, André Anjos, and Sébastien Marcel. "Recent Advances in Face Presentation Attack Detection". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, Julian Fierrez, and Nicholas Evans. 2nd edition (in press). Springer-Verlag, Jan. 2019, pp. 207–228. ISBN: ISBN 978-3-319-92627-8. DOI: 10.1007/978-3-319-92627-8_10.
- [11] Ivana Chingovska, Amir Mohammadi, André Anjos, and Sébastien Marcel. "Evaluation Methodologies for Biometric Presentation Attack Detection". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, Julian Fierrez, and Nicholas Evans. 2nd edition (in press). Springer-Verlag, Jan. 2019, pp. 457–480. ISBN: ISBN 978-3-319-92627-8. DOI: 10.1007/978-3-319-92627-8_20.
- [12] André Anjos, Pedro Tome, and Sébastien Marcel. "An Introduction to Vein Presentation Attacks and Detection". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, Julian Fierrez, and Nicholas Evans. 2nd edition (in press). Springer-Verlag, Jan. 2019, pp. 419–438. ISBN: ISBN 978-3-319-92627-8. DOI: 10.1007/978-3-319-92627-8_18.
- [13] Tiago de Freitas Pereira, André Anjos, and Sébastien Marcel. "Heterogeneous Face Recognition Using Domain Specific Units". In: *IEEE Transactions on Information Forensics and Security* (Dec. 2019). DOI: 10.1109/TIFS.2018.2885284. URL: <https://publications.idiap.ch/index.php/publications/show/3963>.
- [14] Olegs Nikisins, Teodors Eglitis, André Anjos, and Sébastien Marcel. "Fast cross-correlation based wrist vein recognition algorithm with rotation and translation compensation". In: *Sixth International Workshop on Biometrics and Forensics*. June 2018. DOI: 10.1109/IWBF.2018.8401550. URL: <https://publications.idiap.ch/index.php/publications/show/3835>.
- [15] Marcel Sébastien, André Anjos, and Philip Abbet. "Method and internet-connected server for reviewing a computer-executable experiment". Patent US9973503B2 (US). May 2018. URL: <https://patft.uspto.gov/netacgi/nph-Parser?Sect2=PT01&Sect2=HITOFF&p=1&u=/netahtml/PT0/search-bool.html&r=1&f=G&l=50&d=PALL&RefSrch=yes&Query=PN/9973503>.
- [16] Olegs Nikisins, Amir Mohammadi, André Anjos, and Sébastien Marcel. "On Effectiveness of Anomaly Detection Approaches against Unseen Presentation Attacks in Face Anti-Spoofing". In: *The 11th IAPR International Conference on Biometrics (ICB 2018)*. Feb. 2018. DOI: 10.1109/ICB2018.2018.00022. URL: <https://publications.idiap.ch/index.php/publications/show/3793>.
- [17] Guillaume Heusch, André Anjos, and Sébastien Marcel. *A reproducible study on remote heart rate measurement*. Sept. 2017. arXiv: 1709.00962 [cs-se]. URL: <https://arxiv.org/abs/1709.00962>.

- [18] André Anjos and Sébastien Marcel. "A data-network connected server, a device, a platform and a method for conducting computer-executable experiments". Patent WO/2017/221049 (CH). Dec. 2017. URL: <https://patentscope.wipo.int/search/en/detail.jsf?docId=W02017221049>.
- [19] André Anjos, Manuel Günther, Tiago de Freitas Pereira, Pavel Korshunov, Amir Mohammadi, and Sébastien Marcel. "Continuously Reproducing Toolchains in Pattern Recognition and Machine Learning Experiments". In: *Thirty-fourth International Conference on Machine Learning*. Sidney, Australia, Aug. 2017. URL: <https://publications.idiap.ch/index.php/publications/show/3666>.
- [20] André Anjos, Laurent El Shafey, and Sébastien Marcel. "BEAT: An Open-Science Web Platform". In: *Thirty-fourth International Conference on Machine Learning*. Sydney, Australia, Aug. 2017. URL: <https://publications.idiap.ch/index.php/publications/show/3665>.
- [21] Milos Cernak, Alain Komaty, Amir Mohammadi, André Anjos, and Sébastien Marcel. "Bob Speaks Kaldi". In: *Proceedings of Interspeech*. Aug. 2017. URL: <https://publications.idiap.ch/index.php/publications/show/3623>.
- [22] André Anjos, Laurent El-Shafey, and Sébastien Marcel. *BEAT: An Open-Source Web-Based Open-Science Platform*. Apr. 2017. arXiv: 1704.02319 [cs-se]. URL: <https://arxiv.org/abs/1704.02319>.
- [23] Ivana Chingovska, Nesli Erdogmus, André Anjos, and Sébastien Marcel. "Face Recognition Systems Under Spoofing Attacks". In: *Face Recognition Systems Under Spoofing Attacks*. 1st edition. Springer International Publishing, Feb. 2016. Chap. 8, pp. 165–194. DOI: 10.1007/978-3-319-28501-6_8.
- [24] Aythami Morales, Julian Fierrez, Ruben Tolosana, Javier Ortega-Garcia, Javier Galbally, Marta Gomez-Barrero, André Anjos, and Sébastien Marcel. "Keystroke Biometrics Ongoing Competition". In: *IEEE Access* 4 (Nov. 2016), pp. 7736–7746. ISSN: 2169-3536. DOI: 10.1109/ACCESS.2016.2626718.
- [25] Ivana Chingovska and André Anjos. "On the use of client identity information for face anti-spoofing". In: *IEEE Transactions on Information Forensics and Security, Special Issue on Biometric Anti-spoofing* 10.4 (Feb. 2015), pp. 787–796. DOI: 10.1109/TIFS.2015.2400392.
- [26] Ivana Chingovska, André Anjos, and Sébastien Marcel. "Anti-spoofing: Evaluation Methodologies". In: *Encyclopedia of Biometrics*. Ed. by Stan Z.Li and Anil Jain. 2nd edition. Springer US, 2014. ISBN: 978-3-642-27733-7. DOI: 10.1007/978-3-642-27733-7.
- [27] André Anjos, Ivana Chingovska, and Sébastien Marcel. "Anti-Spoofing: Face Databases". In: *Encyclopedia of Biometrics*. Ed. by Stan Z.Li and Anil Jain. 2nd edition. Springer US, 2014. ISBN: 978-3-642-27733-7. DOI: 10.1007/978-3-642-27733-7_9212-2.
- [28] Ivana Chingovska, André Anjos, and Sébastien Marcel. "Biometrics Evaluation Under Spoofing Attacks". In: *IEEE Transactions on Information, Forensics and Security* 9.12 (Aug. 2014). DOI: 10.1109/TIFS.2014.2349158.
- [29] André Anjos, Jukka Komulainen, Sébastien Marcel, Abdenour Hadid, and Matti Pietikainen. "Face Anti-Spoofing: Visual Approach". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, and Stan Z.Li. Springer-Verlag, 2014. Chap. 4, pp. 65–82. DOI: 10.1007/978-1-4471-6524-8_4.
- [30] Ivana Chingovska, André Anjos, and Sébastien Marcel. "Evaluation Methodologies". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, and Stan Z.Li. Springer-Verlag, 2014. Chap. 10, pp. 185–204. DOI: 10.1007/978-1-4471-6524-8_10.
- [31] Stan Z.Li, Javier Galbally, André Anjos, and Sébastien Marcel. "Evaluation Databases". In: *Handbook of Biometric Anti-Spoofing*. Ed. by Sébastien Marcel, Mark Nixon, and Stan Z.Li. Springer-Verlag, 2014. Chap. Appendix A, pp. 247–278. ISBN: 978-1-4471-6523-1. DOI: 10.1007/978-1-4471-6524-8.
- [32] Tiago de Freitas Pereira, Jukka Komulainen, André Anjos, José Mario De Martino, Abdenour Hadid, Matti Pietikainen, and Sébastien Marcel. "Face liveness detection using dynamic texture". In: *EURASIP Journal on Image and Video Processing* 2014:2 (Jan. 2014). DOI: 10.1186/1687-5281-2014-2.
- [33] André Anjos, Murali Mohan Chakka, and Sébastien Marcel. "Motion-Based Counter-Measures to Photo Attacks in Face Recognition". In: *IET Biometrics* (July 2013). DOI: 10.1049/iet-bmt.2012.0071.
- [34] Ivana Chingovska, André Anjos, and Sébastien Marcel. "Anti-spoofing in action: joint operation with a verification system". In: *Computer Vision and Pattern Recognition Conference - Biometrics Workshop*. June 2013. DOI: 10.1109/CVPRW.2013.22.

- [35] Tiago de Freitas Pereira, André Anjos, José Mario De Martino, and Sébastien Marcel. "Can face anti-spoofing countermeasures work in a real world scenario?" In: *International Conference on Biometrics 2013*. June 2013. DOI: 10.1109/ICB.2013.6612981.
- [36] Jukka Komulainen, Abdenour Hadid, Matti Pietikäinen, André Anjos, and Sébastien Marcel. "Complementary Countermeasures for Detecting Scenic Face Spoofing Attacks". In: *International Conference on Biometrics 2013*. June 2013. DOI: 10.1109/ICB.2013.6612968.
- [37] I. Chingovska, J. Yang, Z. Lei, D. Yi, S. Z. Li, O. Kähm, C. Glaser, N. Damer, A. Kuijper, A. Nouak, J. Komulainen, T. Pereira, S. Gupta, S. Khandelwal, S. Bansal, A. Rai, T. Krishna, D. Goyal, M.-A. Waris, H. Zhang, I. Ahmad, S. Kiranyaz, M. Gabbouj, R. Tronci, M. Pili, N. Sirena, F. Roli, J. Galbally, J. Fierrez, A. Pinto, H. Pedrini, W. S. Schwartz, A. Rocha, A. Anjos, and S. Marcel. "The 2nd Competition on Counter Measures to 2D Face Spoofing Attacks". In: *International Conference on Biometrics 2013*. June 2013. DOI: 10.1109/ICB.2013.6613026.
- [38] Tiago de Freitas Pereira, André Anjos, José Mario De Martino, and Sébastien Marcel. "LBP-TOP based countermeasure against facial spoofing attacks". In: *International Workshop on Computer Vision With Local Binary Pattern Variants*. 2012. DOI: 10.1007/978-3-642-37410-4_11.
- [39] André Anjos, Laurent El Shafey, Roy Wallace, Manuel Günther, Chris McCool, and Sébastien Marcel. "Bob: a free signal processing and machine learning toolbox for researchers". In: *ACM Multimedia 2012*. 2012, pp. 1449–1452. DOI: 10.1145/2393347.2396517.
- [40] Ivana Chingovska, André Anjos, and Sébastien Marcel. "On the Effectiveness of Local Binary Patterns in Face Anti-spoofing". In: *IEEE International Conference of the Biometrics Special Interest Group*. 2012. ISBN: 978-3-88579-290-1.
- [41] André Anjos and Sébastien Marcel. "Counter-Measures to Photo Attacks in Face Recognition: a public database and a baseline". In: *International Joint Conference on Biometrics 2011*. Oct. 2011. DOI: 10.1109/IJCB.2011.6117503.
- [42] Murali Mohan Chakka, André Anjos, Sébastien Marcel, et al. "Competition on Counter Measures to 2-D Facial Spoofing Attacks". In: *International Joint Conference on Biometrics 2011*. Oct. 2011. DOI: 10.1109/IJCB.2011.6117509.
- [43] R.C. Torres, A. Anjos, and J.M. Seixas. "Automatizing the Online Filter Test Management for a General-Purpose Particle Detector". In: *Computer Physics Communications* (Oct. 2009). DOI: 10.1016/j.cpc.2010.10.003.
- [44] The ATLAS Collaboration. "ATLAS Trigger and Data Acquisition: capabilities and commissioning". In: *11th Pisa Meeting on Advanced Detectors*. Vol. 617. 1. 2010, pp. 306–309. DOI: 10.1016/j.nima.2009.06.114.
- [45] The ATLAS Collaboration. "Commissioning of the ATLAS High Level Trigger with Single Beam and Cosmic Rays". In: *Computing in High Energy and Nuclear Physics, Prague, Czech Republic, 21 - 27 Mar 2009*. 2009.
- [46] The ATLAS Collaboration. "The ATLAS online High Level Trigger framework: experience reusing offline software components in the ATLAS trigger". In: *Computing in High Energy and Nuclear Physics, Prague, Czech Republic, 21 - 27 Mar 2009*. 2009.
- [47] The ATLAS Collaboration. "Configuration and Control of the ATLAS Trigger and Data Acquisition". In: *The 1st international conference on Technology and Instrumentation in Particle Physics*. 2009.
- [48] The ATLAS Collaboration. "Atlas trigger for first physics and beyond". In: *Physics at LHC 2008 29 September - October 4, 2008 Split, Croatia*. 2009.
- [49] The ATLAS Collaboration. "ATLAS Trigger Status and Results From Commissioning Operations". In: *Advanced Computing on High-Energy Physics 2008, Erice, Sicily, Italy*. 2009.
- [50] André Anjos. "Trigger Systems". In: *Experimental High-Energy Physics and Associated Technologies Workshop*. 2008.
- [51] André Anjos on behalf of the ATLAS Collaboration. "The DAQ/HLT system of the ATLAS experiment". In: *International Workshop on Advanced Computing and Analysis Techniques in Physics Research*. 2008.
- [52] The ATLAS Collaboration. "Readiness of the ATLAS Trigger and Data Acquisition system for the first LHC beams". In: *11th Topical Seminar On Innovative Particle And Radiation Detectors, Siena, Italy*. 2008.
- [53] The ATLAS Collaboration. *Expected Performance of the ATLAS Experiment Detector, Trigger, Physics*. Tech. rep. 2008–020. CERN Open Documentation, 2008.

- [54] The ATLAS Collaboration. "The ATLAS Experiment at the CERN Large Hadron Collider". In: *Journal of Instrumentation* S08003 (Aug. 2008).
- [55] The ATLAS Collaboration. "The ATLAS Event Builder". In: *IEEE Nuclear Science Symposium and Medical Imaging Conference*. 2007.
- [56] The ATLAS Collaboration. "The ATLAS trigger - high-level trigger commissioning and operation during early data taking". In: *International Europhysics Conference on High Energy Physics*. 2007.
- [57] The ATLAS Collaboration. "Alignment data streams for the ATLAS Inner Detector". In: *Computing for High-Energy Physics*. 2007.
- [58] Thiago Ciodaro Xavier, André Rabello Anjos, and José Manoel de Seixas. "Discriminação Neural de Partículas para um Detector Submetido a uma Alta Taxa de Eventos". In: *Learning and Nonlinear Models - Revista da Sociedade Brasileira de Redes Neurais (SBRN)* 4.2 (Oct. 2007), pp. 79–92.
- [59] The ATLAS Collaboration. "The ATLAS Trigger - Commissioning with cosmic rays". In: *International Conference on Computing in High Energy and Nuclear Physics*. 2007.
- [60] Rodrigo Coura Torres, José Manoel Seixas, André Rabello dos Anjos, and Danilo Vannier Cunha. "Online Electron/Jet Neural High-Level Trigger over Independent Calorimetry Information". In: *XI International Workshop on Advanced Computing and Analysis Techniques in Physics Research*. 2007.
- [61] The ATLAS Collaboration. "Integration of the Trigger and Data Acquisition systems in ATLAS". In: *IEEE Real-time conference*. 2007.
- [62] André Anjos on behalf of the ATLAS Collaboration. "The Configuration System of the ATLAS Trigger". In: *IEEE Real-time conference*. 2007.
- [63] The ATLAS Collaboration. "Performance of the final Event Builder for the ATLAS Experiment". In: *15th IEEE Real Time Conference 2007*. 2007.
- [64] André Anjos. "Sistema Online de Filtragem em um Ambiente com Alta Taxa de Eventos". PhD thesis. COPPE/UFRJ, 2006.
- [65] The ATLAS Collaboration. "The ATLAS Data Acquisition and Trigger : concept, design and status". In: *Nucl. Phys. B, Proc. Suppl.* 172 (Nov. 2006), pp. 178–182.
- [66] André Anjos on behalf of the ATLAS Collaboration. "Deployment of the ATLAS High-Level Trigger". In: *IEEE Transactions on Nuclear Science* 53 (Aug. 2006), pp. 2144–2149.
- [67] A. Anjos, R.C. Torres, J.M. Seixas, B.C. Ferreira, and T.C. Xavier. "Neural triggering system operating on high resolution calorimetry information". In: *Nuclear Instruments and Methods in Physics Research* 559 (Apr. 2006), pp. 134–138.
- [68] The ATLAS Collaboration. "Studies with the ATLAS Trigger and Data Acquisition Pre-Series Setup". In: *15th International Conference on Computing In High Energy and Nuclear Physics*. 2006.
- [69] The ATLAS Collaboration. "ATLAS High Level Trigger Infrastructure, ROI Collection and Event Building". In: *15th International Conference on Computing In High Energy and Nuclear Physics*. 2006.
- [70] André Anjos on behalf of the ATLAS Collaboration. "A configuration system for the ATLAS trigger". In: *Journal of Instrumentation, Institute of Physics Publishing and Sissa* P05004 (Feb. 2006).
- [71] The ATLAS Collaboration. "Testing on a Large Scale: running the ATLAS Data Acquisition and High Level Trigger Software on 700 PC Nodes". In: *Computing In High Energy and Nuclear Physics*. 2006.
- [72] The ATLAS Collaboration. "Muon Reconstruction and Identification for the Event Filter of the ATLAS experiment". In: *9th ICATAPP Conference on High Energy Physics*. 2005.
- [73] The ATLAS Collaboration. "Implementation and performance of a tau lepton selection within the ATLAS trigger system at the LHC". In: *9th ICATPP Conference on Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications*. 2005.
- [74] A. Anjos, R.C. Torres, B.C. Ferreira, T.C. Xavier, J.M. Seixas, and D.O. Damazio. "Otimização do Sistema de Trigger do Segundo Nível do ATLAS Baseado em Calorimetria". In: *XXVI Encontro Nacional de Física de Partículas e Campos*. Oct. 2005.
- [75] A. Anjos, R.C. Torres, B.C. Ferreira, T.C. Xavier, and J.M. de Seixas. "Discriminação Neural de Elétrons no Segundo Nível de Trigger do ATLAS". In: *XXVI Encontro Nacional de Física de Partículas e Campos*. Oct. 2005.

- [76] The ATLAS Collaboration. "Overview of the High-Level Trigger Electron and Photon Selection for the ATLAS Experiment at the LHC". In: *IEEE Transactions Nuclear Sciences* (2005) 53 (June 2005), pp. 2839–2843.
- [77] The ATLAS Collaboration. "Implementation and Performance of the Seeded Reconstruction for the ATLAS Event Filter Selection Software". In: *IEEE Trans. Nucl. Sciences* 53 (2007) (June 2005), pp. 864–869.
- [78] The ATLAS Collaboration. "ATLAS DataFlow: the Read-Out Subsystem, Results from Trigger and Data-Acquisition System Testbed Studies and from Modeling". In: *IEEE Trans. Nucl. Sciences* 53 (2006) (June 2005), pp. 912–917.
- [79] André Anjos on behalf of the ATLAS Collaboration. "Configuration of the ATLAS trigger". In: *14th IEEE NPSS Real Time Conference*. June 2005, pp. 990–994.
- [80] The ATLAS Collaboration. "Implementation and Performance of the High Level Trigger Electron and Photon Selection for the ATLAS Experiment at the LHC". In: *IEEE Nuclear Science Symposium and Medical Imaging Conference*. Oct. 2004.
- [81] The ATLAS Collaboration. "Design, deployment and functional tests of the on-line Event Filter for the ATLAS experiment at LHC". In: *Nuclear Science Symposium and Medical Imaging Conference*. Oct. 2004.
- [82] The ATLAS Collaboration. "Online Muon Reconstruction in the ATLAS Level-2 trigger system". In: *Nuclear Science Symposium and Medical Imaging Conference*. 2004.
- [83] The ATLAS Collaboration. "Performance of the ATLAS DAQ DataFlow system". In: *Computing in High Energy Physics and Nuclear Physics*. Oct. 2004. DOI: 10.5170/CERN-2005-002.91.
- [84] The ATLAS Collaboration. "Portable Gathering System for Monitoring and Online Calibration at ATLAS". In: *Computing in High Energy Physics and Nuclear Physics 2004*. Oct. 2004.
- [85] A. Anjos and J.M. Seixas. "Os Filtros de Alto Nível do Experimento ATLAS". In: *XXVI Encontro Nacional de Física de Partículas e Campos*. Aug. 2004.
- [86] J.T. Baines, C.P. Bee, A. Bogaerts, M. Bosman, D. Botterill, B. Caron, A. Anjos, F. Etienne, S. González, K. Karr, W. Li, C. Meessen, G. Merino, A. Negri, J. L. Pinfold, P. Pinto, Z. Qian, F. Touchard, P. Werner, S. Wheeler, F.J. Wickens, W. Wiedenmann, and G. Zobernig. "An Overview of the ATLAS High-Level Trigger Dataflow and Supervision". In: *IEEE Transaction on Nuclear Science* 51.3 (June 2004), pp. 361–366.
- [87] André Anjos on behalf of the ATLAS Collaboration. "The Second Level Trigger of the ATLAS Experiment at CERN's LHC". In: *IEEE Transaction on Nuclear Science* 51.3 (July 2004), pp. 909–914.
- [88] The ATLAS Collaboration. "Algorithms for the ATLAS high-level trigger". In: *IEEE Transactions on Nuclear Science* 51.3 (June 2004), pp. 367–374.
- [89] The ATLAS Collaboration. "The base-line DataFlow system of the ATLAS Trigger and DAQ". In: *IEEE Transactions on Nuclear Science* 51.3 (June 2004), pp. 470–475.
- [90] The ATLAS Collaboration. "ATLAS TDAQ data collection software". In: *IEEE Transactions on Nuclear Science* 51 (June 2004), pp. 585–590.
- [91] The ATLAS Collaboration. "Studies for a common selection software environment in ATLAS : from the Level-2 Trigger to the offline reconstruction". In: *IEEE Transactions on Nuclear Science* 51.3 (June 2004), pp. 915–920.
- [92] The ATLAS Collaboration. "Architecture of the ATLAS high level trigger event selection software". In: *Nucl. Instrum. Methods Phys. Res.* 518.1–2 (Feb. 2004), pp. 537–541.
- [93] The ATLAS Collaboration. "An Overview of Algorithms for the ATLAS High Level Trigger". In: *IEEE Transactions on Nuclear Science* 51.3 (2004) (June 2003), pp. 367–374.
- [94] The ATLAS Collaboration. "Architecture of the ATLAS online physics-selection software at LHC". In: *Conference on Astroparticle, Particle, Space Physics, Detectors and Medical Physics Applications*. 2003.
- [95] The ATLAS Collaboration. "The baseline dataflow system of the ATLAS trigger and DAQ". In: *9th Workshop on Electronics for LHC Experiments*. 2003.
- [96] The ATLAS Collaboration. *The ATLAS HLT, DAQ and DCS Technical Design Report*. Tech. rep. CERN Publication, 2003.

- [97] A. Anjos and J.M. Seixas. "Neural particle discrimination for triggering interesting physics channels with calorimetry data". In: *Nuclear Instruments And Methods In Physics Research A - Accelerators, Spectrometers, Detectors And Associated Equipment* 502 (Aug. 2003), pp. 713–715. DOI: 10.1016/S0168-9002(03)00553-9.
- [98] The ATLAS Collaboration. "The DataFlow System of the ATLAS Trigger and DAQ". In: *Conference for Computing in High-Energy and Nuclear Physics*. 2003.
- [99] The ATLAS Collaboration. "A New Implementation of the Region-of-Interest Strategy for the ATLAS Second Level Trigger". In: *Conference for Computing in High-Energy and Nuclear Physics*. 2003.
- [100] The ATLAS Collaboration. "The Algorithm Steering and Trigger Decision mechanism of the ATLAS High Level Trigger". In: *Conference for Computing in High-Energy and Nuclear Physics*. 2003.
- [101] The ATLAS Collaboration. "Experience with multi-threaded C++ applications in the ATLAS dataflow software". In: *Conference for Computing in High-Energy and Nuclear Physics*. 2003.
- [102] A. Anjos and J.M. Seixas. "Redes Neurais especialistas para a separação Elétron-Jato usando Calorímetros multi-camadas e multi-segmentados". In: *XXII Encontro Nacional de Física de Partículas e Campos*. 2001.
- [103] André Anjos. "Sistema neuronal rápido de decisão baseado em calorimetria de altas energias". PhD thesis. COPPE/UFRJ, 2001.
- [104] André Rabello dos Anjos and José Manoel de Seixas. "Mapeamento em anéis para uma separação neuronal elétron-jato usando calorímetros multi-camadas e multi-segmentados". In: *XIX Encontro Nacional de Física de Partículas e Campos*. 2000.
- [105] André Rabello dos Anjos and José Manoel de Seixas. "Integrando Plataformas e Algoritmos para o Segundo Nível de Trigger do Experimento ATLAS". In: *Encontro Nacional de Física de Partículas e Campos*. 1999.
- [106] André Rabello dos Anjos, Augusto Dantas, and José Manoel de Seixas. "Um Protótipo do Sistema de Validação do Nível 2 para as Condições do LHC". In: *Encontro Nacional de Física de Partículas e Campos*. 1998, pp. 32–33.
- [107] J. M. Seixas, A. R. Anjos, C. B. Prado, L. P. Calôba, A. C. H. Dantas, and J. C. R. Aguiar. "Neural classifiers implemented in a transputer based parallel machine". In: *International Meeting on Vector and Parallel Processing (VECPAR)*. 1998.
- [108] J.M. Seixas, L.P. Caloba, A.R. Anjos, B. Kastrup, A.C.H. Dantas, and R. Linhares. "A neural online triggering system based on parallel processing". In: *IEEE Transactions on Nuclear Science* 45.4 (Aug. 1998), pp. 1814–1818.
- [109] André Rabello dos Anjos. "Sistema de classificação baseado em uma máquina com sistema distribuído". PhD thesis. Departamento de Eletronica/UFRJ, 1997.
- [110] J.M. Seixas, L.P. Calôba, A.R. Anjos, A.C.H. Dantas, and R. Linhares. "Fast Neural Decision System Based On DSPs And Parallel Processing". In: *International Conference on Signal Processing Applications and Technologies, San Diego, USA*. 1997, pp. 1629–1633.
- [111] J.M. Seixas, L.P. Calôba, and A.R. Anjos. "Particle discrimination using sub-optimal filtering techniques". In: *Congresso Brasileiro de Automatica (CBA), São Paulo, Brasil*. 1996, pp. 635–640.